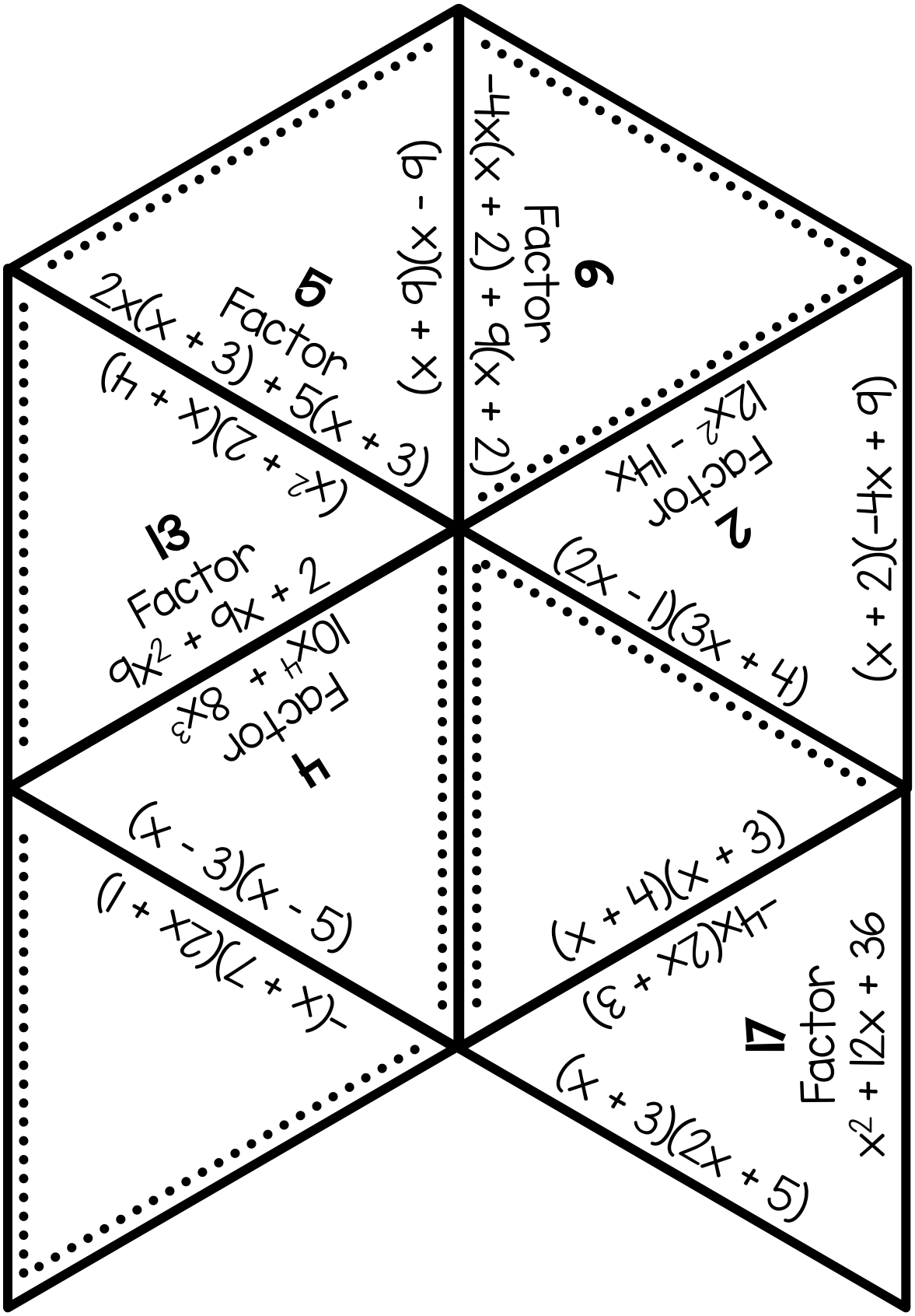
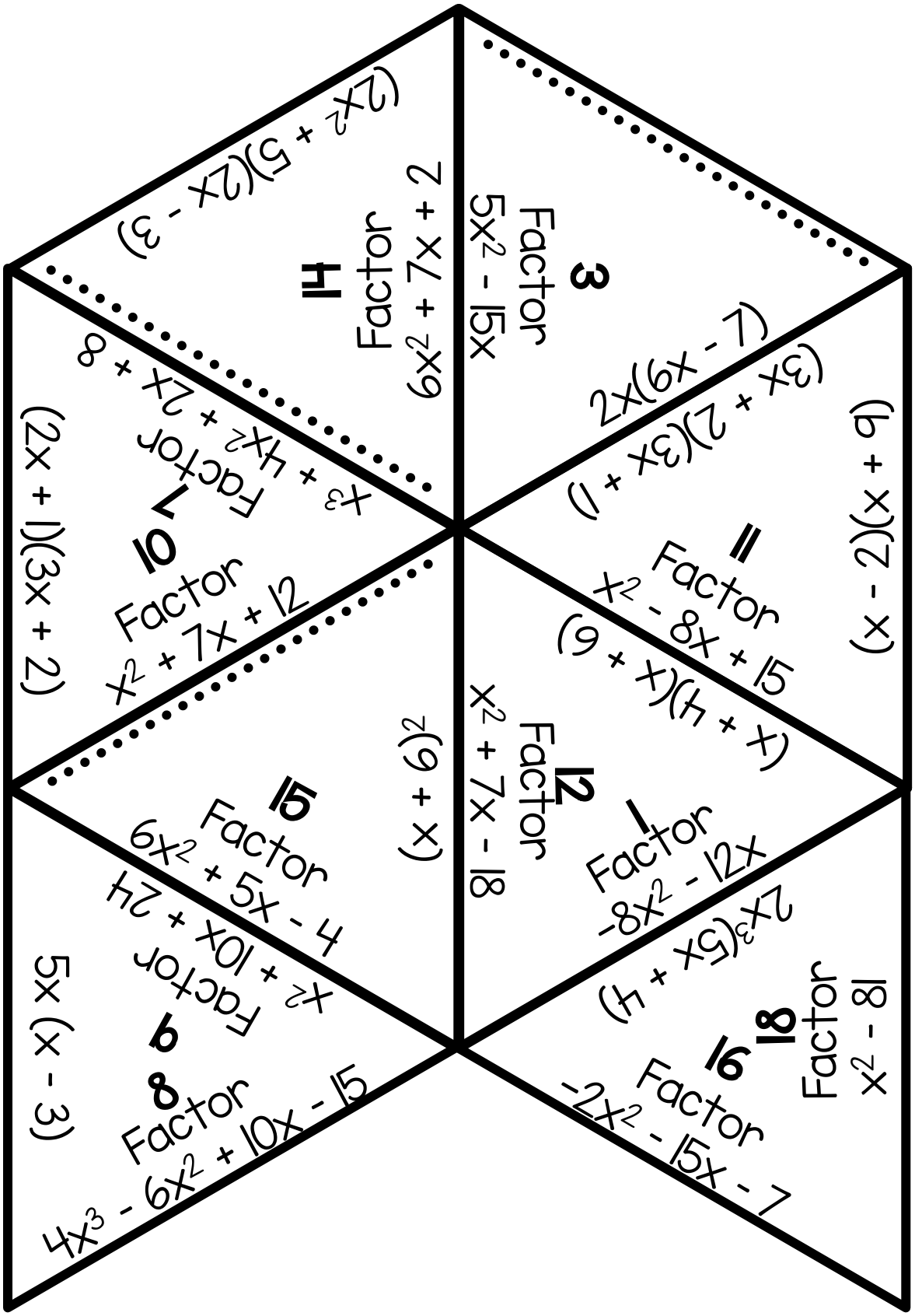
Factoring Polynomials (page 1)



Factoring Polynomials (Page 2)



Name: _____ Date: _____ Period: _____

Factoring Polynomials

{Student Recording Sheet}

1	2	3
4	5	6
7	8	9

10	11	12
13	14	15
16	17	18

Name: Answer Key! _____ Date: _____ Period: _____

Factoring Polynomials

{Student Recording Sheet}

1 $-8x^2 - 12x$ $= -4x(2x + 3)$	2 $12x^2 - 14x$ $= 2x(6x - 7)$	3 $5x^2 - 15x$ $=5x(x - 3)$
4 $2x^3(5x + 4)$ $= 2x^3(5x + 4)$	5 $2x(x + 3) + 5(x + 3)$ $= (x + 3)(2x + 5)$	6 $-4x(x + 2) + 9(x + 2)$ $= (x + 2)(-4x + 9)$
7 $x^3 + 4x^2 + 2x + 8$ $=(x + 4)(x^2 + 2)$	8 $4x^3 - 6x^2 + 10x - 15$ $= (2x - 3)(2x^2 + 5)$	9 $x^2 + 10x + 24$ $= (x + 4)(x + 6)$

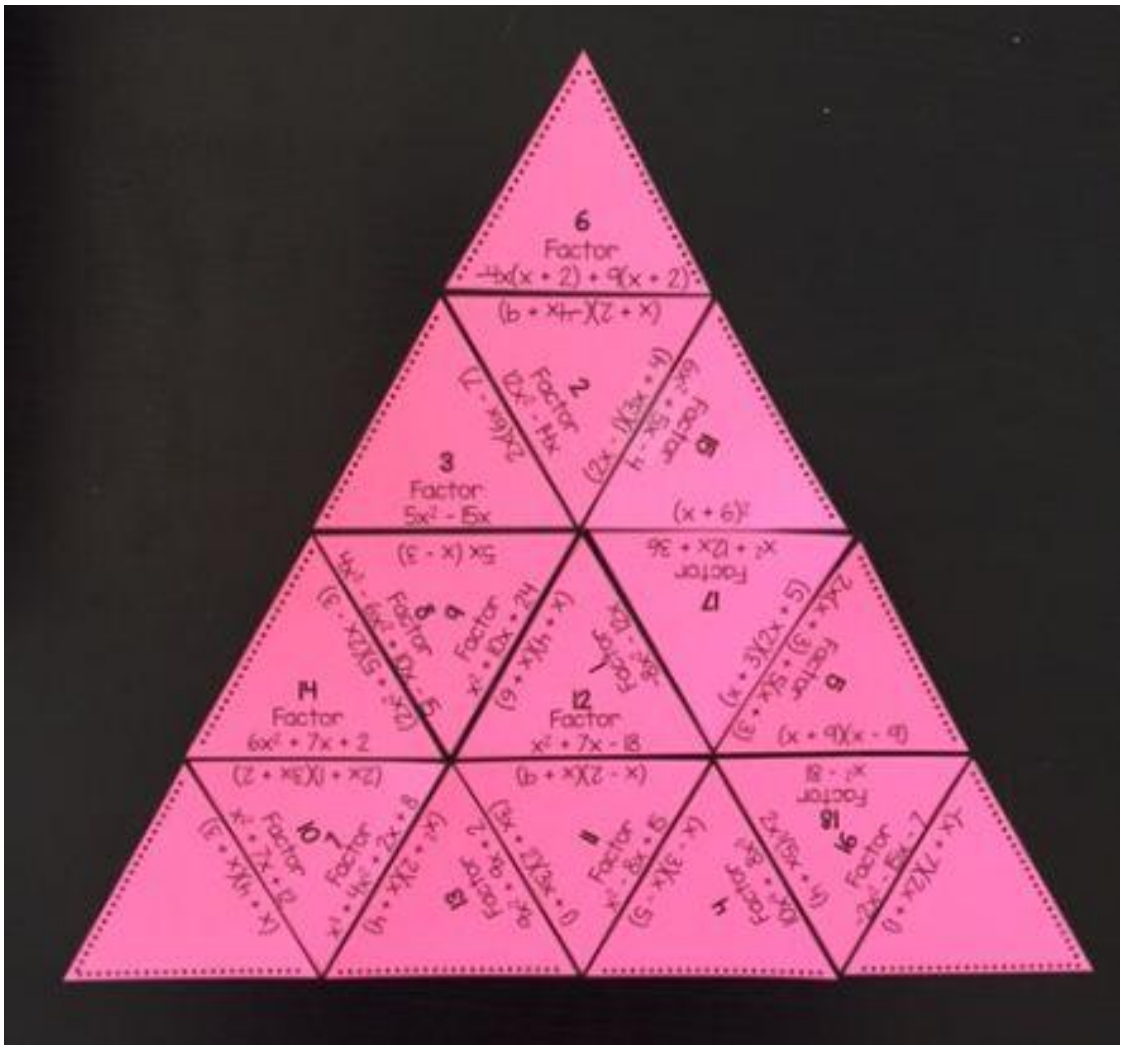
10 $x^2 + 7x + 12$ $= (x + 3)(x + 4)$	11 $x^2 - 8x + 15$ $= (x - 3)(x - 5)$	12 $x^2 + 7x - 18$ $= (x - 2)(x + 9)$
13 $9x^2 + 9x + 2$ $= (3x + 2)(3x + 1)$	14 $6x^2 + 7x + 2$ $= (2x + 1)(3x + 2)$	15 $6x^2 + 5x - 4$ $= (3x + 4)(2x - 1)$
16 $-2x^2 - 15x - 7$ $= -(x + 7)(2x + 1)$	17 $x^2 + 12x + 36$ $= (x + 6)^2$	18 $x^2 - 81$ $= (x + 9)(x - 9)$

Directions:

Print pages 1 & 2 for each set of students (I usually have my students work in partners). Every student will also need a copy of the recording sheet (pages 3 & 4). You may choose to just have students work out all of the problems on a sheet of white lined paper. I use the recording sheet to help with organization, accountability, and for easy grading.

Questions 1-4: Greatest Common Factor
Questions 5-8: Factoring out a Common Binomial/ 4 Terms
Questions 9- 12: Trinomials in the Form $x^2 + bx + c$
Questions 13-16: Trinomials in the Form $ax^2 + bx + c$
Questions 17- 18: Special Products

Students will factor all of the trinomials, cut out the pieces, and arrange them to create the figure below. The pieces fit together so that the problem and it's solution face one another along an edge.



(x + 4)(x + 3)
Factor
x² + 7x + 12
10
Factor
x³ + 4x² + 2x + 8
7
(x² + 2)(x + 4)
13
Factor
9x² + 9x + 2
(2x + 1)(3x + 2)
Factor
6x² + 7x + 2
14
(2x² + 5)(2x - 3)
(3x + 2)(3x + 1)
11
Factor
x² - 8x + 15
4
Factor
10x⁴ + 8x³
(x - 3)(x - 5)
12
Factor
x² + 7x - 18
(6 + x)(2 - x)
8
Factor
x² + 10x + 24
(x + 4)(x + 6)
1
Factor
-8x² - 12x
4x³ - 6x² + 10x - 15
5x(x - 3)
3
Factor
5x² - 15x
2x(6x - 7)
2x³(5x + 4)
16
Factor
-2x² - 15x - 7
-(x + 7)(2x + 1)
18
Factor
x² - 81
(x + 9)(x - 9)
9
Factor
2x(x + 3) + 5(x + 3)
(2x + 5)(x + 3)
-4x(2x + 3)
17
Factor
x² + 12x + 36
(x + 6)²
15
Factor
6x² + 5x - 4
(3x + 4)(2x - 1)
2
Factor
12x² - 14x
-4x(x + 2) + 9(x + 2)
(6 + x)(-4 - 2x)
6